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NILOPEGAMYS PLUMBEUS.

Drawn by L. L. Pray after a field study by L. A. Fuertes.

About two-thirds natural size.

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A NEW GENUS OF AQUATIC RODENTS
FROM ABYSSINIA

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A NEW GENUS OF AQUATIC RODENTS FROM ABYSSINIA

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The recent Field Museum — Chicago Daily News Abyssinian Expedition obtained important collections of small and medium-sized mammals upon which a full report cannot be made at the present time. However, there is one outstanding novelty which is so distinct from known forms that a preliminary description may be given at once. This is a murine rodent with rather pronounced aquatic modifications which was found in a small mountain stream near the source of the Little Abbai or Blue Nile. Rodents with similar external modifications are known from other parts of the world, but heretofore the African continent has furnished nothing so nearly analogous to them as the animal here described. Its coloration as well as its thick soft pelage and its large hind feet are suggestive of the South American *Ichthyomys*, but its adaptations for aquatic life seem not to have proceeded quite so far as in that form. These adaptations are mainly in the character of the pelage, the reduction of the external ears and the enlargement of the hind feet. The skull shows certain interesting similarities to *Ichthyomys* and *Hydromys*, but otherwise is not greatly modified and may indicate derivation at no very remote period from some of the common types widely distributed in central Africa. The only other African rodent with aquatic adaptations is *Dasymys*, but this shows no especial affinity to the present genus, and doubtless the two had independent origins.

Nilopegamys plumbeus gen. et sp. nov.

Type from small stream tributary to the Little Abbai, between Sakalla and Njabarra, Gojam, Abyssinia. Altitude 8500 ft. No. 28633 Field Museum of Natural History. Adult male. Collected Mar. 20, 1927 by Wilfred H. Osgood. Original No. 6401.

Generic characters.—External form not especially unusual, the size (head and body 148 mm.) and proportions of head, body, and tail about as in various other African rodents; external ears much reduced, but projecting somewhat above the surrounding pelage; hind feet large and broad, equaling in length about .27 of the length

of the head and body; pelage very soft and dense. Skull with general resemblance to that of *Mastomys*; braincase large, smooth, and inflated in appearance; interorbital region abruptly depressed. First upper molar tooth four-rooted, one large antero-external root, one postero-external, and two smaller internal roots; first upper molar occupying about half the length of the toothrow; last upper molar small and comprised of only two elements, a small antero-internal cusp and a larger main cusp.

Color.—Upperparts nearly uniform *blackish slate*, the underlying color a slightly paler *slate gray*; underparts approaching pure white, this extending throughout to the roots of the hairs; color of the upperparts reaching on the outer side of the arm to the carpal joint where it terminates broadly and abruptly; white of underparts carried forward rather broadly above the upper lip to the base of the whiskers and to the muzzle which is hairy except for the very small and deeply cleft rhinarium; about half the whiskers white, the rest blackish; ears blackish, their lower edges narrowly white; a large whitish subauricular spot; upper side of tail blackish, the hairs short and not concealing the scaly annulations (13 to cm.); under side of tail dull whitish except for a sharp median black line, slightly interrupted proximally and becoming confluent with the upper color terminally; forefeet and wrists white, the digits rather thinly haired; hind feet and metatarsal joint dull whitish, the hairs short and thinly distributed.

Skull and teeth.—Skull with large full braincase, depressed interorbital region, and straightened rostrum; no prominent ridges or angularities; parietals large and extended well forward; frontals depressed anteriorly and the interorbital edges slightly elevated; nasals convex and semi-tubular anteriorly, extended posteriorly into the interorbital depression and ending well behind the very small dorsal exposure of the lacrymals; zygomata slender, the so-called zygomatic plate with its anterior edge rising vertically to a rounded dorsal border which is not especially prominent when viewed from above; under side of skull much as in *Mastomys*; palatine slits ending about on the level of the back of the anterior root of first upper molar; palate rather wide and not definitely channeled; auditory bullae of medium size; ramus of mandible rather slender; coronoid process long and slender. Teeth similar in general to those of *Mastomys*; first upper molar with four roots, a large antero-external root, a smaller postero-external, and two still smaller internal ones; first

upper molar with the usual three median tubercles and three external and two internal ones; lateral tubercles not separated from median ones by deep sulci; first upper molar relatively large, occupying about half the length of the toothrow; last upper molar small and including merely a rounded central part and a smaller antero-internal tubercle; relations of incisors and cheekteeth somewhat modified so that a line projected forward from the level of the grinding surfaces of the cheekteeth crosses the lower half of the incisors instead of the vicinity of the gnathion as in most related forms.

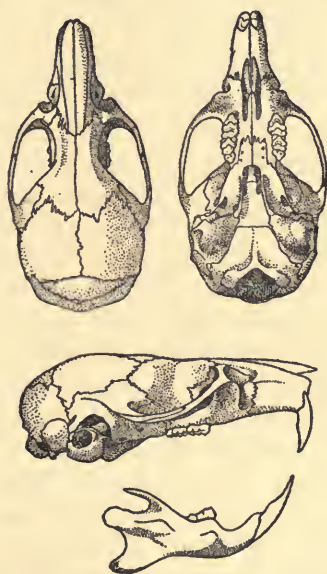


Fig. 1. Skull of type of *Nilopegamys plumbeus* $\times 1 \frac{1}{9}$

Measurements.—Adult male (type), measured in flesh. Total length 328; head and body 148; tail 180; hind foot with claw 40; ear from notch (dry) 13. Skull of type: Greatest length 35.1; basilar length 29.4; zygomatic breadth 17.8; mastoid breadth 14.7; nasals 13.7×3.5 ; depth of braincase 10.8; breadth of braincase 15.4; least interorbital breadth 5.2; breadth of zygomatic plate 3.3; length of palate from gnathion 17; palatal foramina 6.8×2.4 ; diastema 10; upper toothrow 5.8; crown of first molar upper 2.9.

Remarks.—The external characters of this genus distinguish it at once from all other African rodents. The very dense soft pelage, the small eyes and ears, the large broad swimming hind feet

and the strikingly contrasted color pattern together furnish a combination which is unique, at least in Africa. The cranial characters also are unique, but in most cases their relation to the animal's habits are by no means so apparent. Of especial interest is the depression of the dorsal outline of the skull above the orbits and the accompanying tendency to dorsal flexure of the rostrum and ant-orbital part of the skull. The recurrence of these characters in this form and in the widely separated but similarly aquatic forms, *Hydromys* and *Ichthyomys*, leads to the suspicion that they bear some rather definite relation to life in the water. The suggestion may be ventured, therefore, that this relation may be in connection with the act of swimming, in which the head is thrown back and the nostrils kept elevated while other parts of the animal are submerged.

The general cranial characters of *Nilopegamys* seem to indicate fairly close genetic relationship with the common rodents of central Africa, especially *Mastomys* and *Stenocephalomys*, the former widely distributed and the latter, like *Nilopegamys*, confined to the higher mountains of Abyssinia. The teeth are quite similar to those of *Mastomys*, but the first upper molar has four roots instead of three, that is, there are two closely connected internal roots occupying the position of the single internal root of *Mastomys*. However, in *Stenocephalomys*, this internal root is divided, although not quite so definitely as in *Nilopegamys*. Only a few species of *Mastomys* have been examined with respect to this character and it is possible that it may be subject to some variation within the group. Unfortunately no female of *Nilopegamys* is available and the mammary formula cannot be stated. The principal superspecific groups of African rodents have been carefully defined recently by Oldfield Thomas (Ann. & Mag. Nat. Hist., (9), 17, pp. 174-179, 1926) and his findings regarding the number and arrangement of roots in the first upper molar seem to indicate that the condition in *Nilopegamys* is not a common one. In most groups having the tooth four-rooted, as *Aethomys* and *Dephomys*, the fourth root is in median external position. In *Nilopegamys* this median root is absent, but the internal root is divided, making the same total of four roots. *Dasymys*, with six and even seven roots, appears to need no consideration in this connection.

The type and only specimen of this interesting water rat was taken in a small clear stream, probably nameless but tributary to the Little Abbai not far from its source. The trap which caught it was set in a little runway leading from the water across a tiny islet,

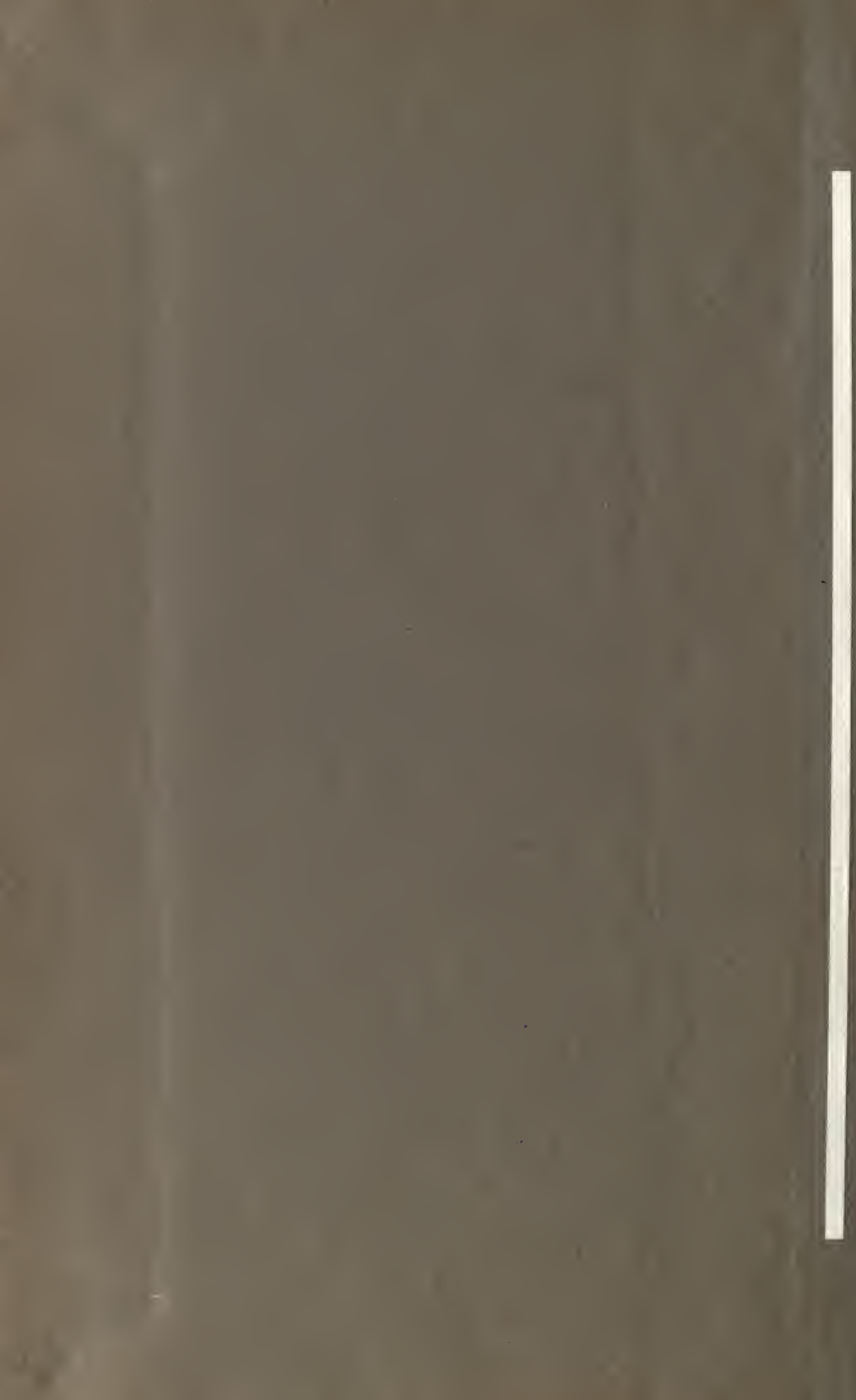
scarcely more than a weed-bordered stepping-stone. Unfortunately, no further opportunity was afforded for trapping in similar situations, so additional specimens were not obtained.

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